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AUTHOR Carnes, John
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ABSTRACT

Problems associated with the poor academic and technical preparation of many workers can be addressed through the use of occupational analysis techniques coupled with the development of curricula based on the results of such analyses. This workplace literacy handbook describes five stages in analyzing business literacy needs and developing relevant curricula. Following a brief introduction, the first section, "Getting Organized," describes the creation of a technical advisory committee (TAC) made up of workplace supervisors, senior-level workers, workplace training directors, a representative from organized labor, and postsecondary instructors, administrators, and career counselors. The next section, "Targeting Industries and Occupations," discusses the collection and analysis of labor market information. Next, "Occupational Analysis" describes the Developing a Curriculum (DACUM) process in which expert workers from a business serve on special panels to assist in identifying job tasks and skills. The fourth section, "Task Analysis (Literacy Audit)," reviews the application of special matrices which list job tasks on the vertical axis, and various mathematical, reading, writing, speaking, and listening skills along the horizontal axis. The final section, "Curriculum Development," discusses the creation and sequencing of course objectives, and the evaluation of student progress. Detailed appendixes provide a sample completed job inventory for poultry production and processing; a sample task analysis matrix; and a sample basic skills taxonomy which reviews and defines the academic skills listed on the task analysis matrix. (PAA)

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NORTHEAST TEXAS AGRICULTURAL LITERACY NETWORK
(A-Lit-NeT: A Rural College Partnership Project)

HANDBOOK

for Customizing Workplace Literacy to Employer Training Needs

by
John Carnes, Ph.D.

Sponsored Cooperatively by

The American Association of Community and Junior Colleges

and

Northeast Texas Community College

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INTRODUCTION

The report, "Building a Quality Workforce" stated that the U.S. is experiencing a widening gap between workplace needs and work force capabilities. Educators must address this mismatch between the needs of business and the skills the work force. The report identified two separate problems in which the mismatch occurs. One problem concerns basic academic skills. The same document reported that the two-thirds of employers consulted assessed the current pool of entry level applicants as being insufficiently prepared in basic skills. These basic skills are reading, writing, mathematics, and communication skills. The majority of the business representatives consulted indicated that workers should read on at least an eighth grade level. Many felt that an 11th or 12th grade level was required.

The second problem relates to the technical training that prepares students for jobs and the actual on-the-job performance requirements of the workplace. The economy and the workplace are changing rapidly. The jobs themselves are changing in content and skill requirements. In far too many instances, students who complete training programs are either under prepared or possess outdated technical skills.

Both problems stem from a lack of opportunity for effective communications between academic educators, vocational-technical educators, and business persons regarding the knowledge and skills taught and those needed in the workplace. The purpose of this handbook is to enhance the communication of training needs between business and education in order to close the gap between employer training needs and work force skills.

Projections indicate increasing numbers of people who are available for employment will be under educated and not likely to complete an extended program of study. For many adults, time available for education and training is decreasing. Many of them must work full-time and care for a family, simultaneously. These "students" will need flexible class schedules if they are to complete their education. Many will be attracted to programs convenient to the workplace.

Not only will business, industry, and the work force have to be more flexible and adaptable to survive in the coming decades, but community and junior colleges must also become more flexible and adaptable in delivering instruction to support the training needs of American society. One remedy for these problems may be the use of occupational analysis techniques coupled with the development of curriculum materials based on the results of such analyses. In this handbook, five stages are described to assist workplace literacy efforts in analyzing business workplace literacy needs and developing curricula to meet those needs. The stages are:

- GETTING ORGANIZED. Who should be involved in developing a workplace literacy program? Who should be responsible for what activities?
- TARGETING INDUSTRIES & OCCUPATIONS. What business should be targeted as workplace training sites? How can workplace literacy best support economic development.
- OCCUPATIONAL ANALYSIS. Should the persons enrolled in a workplace literacy program receive general basic skills instruction or should the training be tailored to the employer's needs?
- CURRICULUM DEVELOPMENT. How can the results of an occupational analysis be "converted" into a curriculum?

Technical Advisory Committee

Training people for improved on-the-job performance is a complex undertaking. Few individuals have the requisite background to be expert in both workplace training needs, curriculum development, and instruction. Therefore, it is important that a team of individuals be brought together early-on to tackle this difficult problem. A workplace literacy technical advisory committee (TAC) will play a key role in the development of the program. The committee's primary function will be in the area of instructional content for curriculum development. The TAC should be used in the curriculum development phase to:

- Approve the lists of target industries and occupations most critical to the local economy
- Approve the inventory of duties and tasks (job inventory)
- Approve basic skills taxonomy
- Approve the content of basic course outlines developed for the approved curriculum
- Approve the standards for determining mastery of each competency
- Make recommendations for the development and administration of competency exams

The TAC should make other contributions to the development, installation, evaluation, and support of a workplace literacy program as required. The members representing the private sector should comprise two-thirds of the TAC membership (10 private sector and five college). The following is a recommended roster of TAC membership:

- Individuals who are presently supervising entry-level workers
- Individuals who are presently performing as senior-level workers

- Training directors from the private sector
- A representative from organized labor
- From participating postsecondary institution
  - One basic skills instructor
  - One administrator of adult education
  - One instructor from a related postsecondary vocational-technical program
  - One administrator of postsecondary vocational-technical education
  - One career counselor

Creating the TAC

The postsecondary representatives should cooperatively develop a list of proposed TAC members from the private sector and submit the list to their president. The college president should send written invitations to individuals in the private sector to serve on the committee. The written invitation to serve should specify the date, time, and place of the first TAC meeting.

Orienting the TAC

The first meeting of the TAC should be held to orient the members to the purpose and procedures of developing the workplace literacy program. At the orientation meeting the members should be made aware of the roles and responsibilities of each member of the committee. Co-chairs should be elected--one to represent the private sector and one the college. The college chairman should act a project director.

Using the TAC

As previously stated, the technical advisory committee should play a key role in the development of the curriculum and instructional content of the workplace literacy program. The committee should only be convened at times when there are materials to be reviewed and approved by the committee membership. Each step or phase of the curriculum development process should be reviewed and approved by the TAC. Approvals will come quickly if the project director provides documentation for each product that is submitted to the committee. Recommendations for improvement of products or processes made by the committee should be considered seriously by the project director.

TARGETING INDUSTRIES & OCCUPATIONS

Gathering Labor Market Information

Labor market information (LMI) is not difficult to find. There are literally reams of available data. Reliable, up-to-date LMI that is complete and summarized to assist in decision making is more difficult to obtain--especially for sub-state regions and rural areas. Still, LMI can be useful to target industries and occupations were there are a lot of people employed. These target industries and occupations are often very important to the local economies that support rural community and junior colleges.

Targeting Industries

Each state has a State Occupational Information Coordinating Committee, or SOICC. A SOICC can use labor market data from a variety of sources to rank industries in terms of actual and potential employment. Many SOICCs have developed computer software that automates this process for sub-state areas. An initial list of key industries should be obtained from the SOICC. This list must be validated by local employment service labor market analysts, chambers of commerce, Job Training and Partnership Act administrators, and others with a knowledge of the local labor market.

Targeting Occupations

Given a validated list of target industries, the state SOICC office should be able to provide an initial list of target occupations. Industries have known "staffing patterns" which enable a labor market analyst to estimate the number of persons employed in an occupation across the target industries. Inappropriate occupations can be "filtered" from the list of target occupations list using criteria such as

- Annual average job openings
- Training time

- Growth and turnover rates
- Educational requirement
- Wage rate
- Percentage growth
- Absolute number of projected jobs

Again the target occupations should be validated by local individuals with a knowledge of the local labor market. With validated lists of target industries and target occupations within the target industries, the TAC should be well positioned to recommend a major employer, or group of employers, to approach concerning a workplace literacy partnership. By focusing workplace literacy efforts on industries and occupations that are important to the local economy, community and junior colleges support economic development.

Careful consideration should be given to the appropriate scope of the target occupation. If an occupation is defined too narrowly, the resulting workplace literacy program will have restricted utility across industries. Broadly defined occupations may require more training time than necessary and program completers could receive insufficient training in critical knowledge and skills. The occupational definition is used to determine who are the eligible participants in occupational analysis process. A reference useful in defining target occupations is Vocational Preparation and Occupations, Third Edition, Volume I. This document is available from the National Occupational Information Coordinating Committee.

OCCUPATIONAL ANALYSIS

Introduction

The description that follows is a summary of another handbook entitled TEXCOM: Texas System for Developing a Competency-Based Curriculum. This document is available from Northeast Texas Community College. The TEXCOM handbook describes the process of occupational and task analysis in greater detail.

Occupational analysis operates on the following premises:

- Expert workers are better able to define their job than anyone else.
- Any job can be effectively and sufficiently described in terms of the tasks that successful workers in that occupation perform.
- All tasks have direct implications for the knowledge and attitudes (basic skills) that workers must have in order to perform the tasks successfully.

The type of occupational analysis described in this section is a modified version of process known as Developing a Curriculum (DaCum). Widely used since it was developed during the early 1970s, DaCum has proven reliable. DaCum requires companies to release their best workers for a two or three day period to serve on a panel--a considerable donation of time and expertise. For this reason, sometimes a "full blown" DaCum is not feasible in small communities, in occupations which tend to be performed in one and two person shops, or where a single large employer in the area is the only source for panel members.

Often, a modified DaCum is the best approach. A modified DaCum simply validates a previously completed inventory of the duties and tasks (job inventory) of the target occupation. DaCum, on the other hand, starts from scratch with a blank piece of paper. Validation of a good occupational analysis typically takes fewer panel members and only one day of their time.

In conducting the TEXCOM version of occupational analysis (modified DaCum), there are two distinct roles to be managed--the coordinator and the facilitator.

Coordinator

Select Panel Members

Care should be exercised to select panel members who are the most competent and knowledgeable personnel available. It is also important to select panel members who can establish a good working relationship with each other and the TEXCOM facilitator. The criteria for selecting panel members is summarized in the following statements:

- All members should have performed a majority of the proposed tasks of the occupation as entry level workers.
- Less than one third should be presently supervising the performance tasks of entry level workers in this occupation.
- The non-supervisory members need to be senior level workers who are presently performing tasks in the occupation.
- A supervisor and supervisees, from the same business, should not be allowed to serve together on the panel since this may restrict the supervisee's ability to freely communicate with the panel.
- All members must have the ability to communicate and work cooperatively as team members on the panel.
- All members need to be free from bias and open-minded about the proposed workplace literacy program.
- All members must be willing to commit at least one full day to the proposed effort.

At this point, it might be well to point out that a TEXCOM panel and your TAC are not the same groups. The TAC is chosen to make workplace literacy program recommendations across target industries and occupations. They are not necessarily knowledgeable about the specific tasks your panel will be reviewing.

It is important for the coordinator to make appointments to visit with local businesses and industries personally to explain the TEXCOM process. The coordinator will need to go prepared to explain how the results will be used, and the qualifications of the workers or supervisors needed. Experience has shown that it is beneficial to have a written summary of the process and the qualifications for panel members that can be left with the industry contact person. It should be communicated to the representative that the results of the TEXCOM panel will be used by the college to develop a workplace literacy program that will produce more

trainable workers for that company and other employers in the community. Most companies realize the value of literate employees.

Nurture And Maintain Panel Commitment (Follow-Up)

Thirty days prior to convening the panel, the coordinator should personally visit each panel member to describe the TEXCOM process and answer any questions. The panel member should be informed of his or her role and the benefits of their efforts. About 10 days prior to the panel meeting the coordinator should telephone each member and confirm their participation.

Prepare For Panel Session (Materials, Arrangements)

The panel meeting should be held in a location convenient to most of the panel members. The room should be well lighted and large enough to accommodate a group of at least 20 people. Walls should be suitable for attaching large papers either by tape or sticky putty. There should be a blank wall of about 30 feet. The room needs to allow space for comfortable seating of the panel in an arc facing the wall with sufficient working space for the facilitators and unobtrusive seating for observers. The panel members will work at tables and under no circumstances should student desks be used for this purpose. Each member should have a tag with their name and company name on it. It will be necessary to have coffee and other suitable refreshments available for the participants.

The following is a list of materials for use with a TEXCOM panel:

- Name tags
- 5" by 7" index cards
- Writing pads, pens (no pencils), large felt tip pens (black, red, and green)
- Tape and sticky putty
- A portable or lap-top computer with printer and word processing software would be helpful in recording tasks onto forms.
- Optional flip chart pad and easel

Facilitator

In the previous activities, the responsibilities of the coordinator were described. With the convening of the TEXCOM panel, the facilitator assumes the primary responsibilities. If no college staff have experience facilitating such a meeting, it may be desirable to hire an external consultant to act as facilitator.

Convene And Orient Panel

This section describes some recommended activities for orienting the TEXCOM panel. These represents only the essential activities, and the facilitator will have to ensure that all members are thoroughly acquainted with meeting objectives and procedures.

The facilitator should call the meeting to order and review the general objectives of the panel. All panel members should have the opportunity to introduce themselves, their company's name, type of work they do or supervise, and anything of note they wish to add.

The following list presents an outline for a panel orientation:

- Establish rapport and create a participatory atmosphere
- Present an overview of the panel meeting
- Describe the following operational guidelines
  - Everyone participates equally
  - Share ideas freely
  - Hitch-hike on each other's ideas
  - Provide constructive suggestions rather than negative criticisms
  - All task statements are carefully considered
  - References are not required
  - Observers cannot participate
- Describe how target industries and occupations for the training program were identified
- The necessity of identifying duty fields for the job inventory
- How tasks will be identified
- An overview of the process for analyzing tasks and developing curriculum

Identify Duty Fields

A duty field is a major functional division of work and represents a logical and useful categorization of tasks. Duty fields are normally divided into six or more task statements which share common characteristics. There are two ways to identify duty fields. One is to identify the classes of objects and/or sub-systems that the worker acts upon. The objects include items of a physical nature such as equipment, classes of people, or a series of reporting forms used in the work environment and involved in producing a usable product or service. Sub-systems are a grouping of objects that work in a systematic and purposeful manner such as brake systems, feed handling systems, or greenhouse environmental control systems.

Another way to define duty fields is to identify the objects/sub-systems that act upon the worker. Examples include performance appraisal, supervisors, budgets, time sheets, organizational rules, and workloads. This approach is useful in occupations where task performance is "data and/or people" dependent and employees spend a lot of time working with ideas. These occupations are dominated by paper work, data analysis, and/or person to person communications and relations. The following guidelines should be followed when identifying duties:

- The key factor in defining duty fields is to identify sets of work activities where tasks group together naturally to meet work objectives. This provides job inventory validity.
- Duty fields containing fewer than eight or ten tasks are easier to work with than those containing large numbers of tasks.
- Duty statements should not imply either a type of job within the occupational area or a job specialty within one occupation. Reviewers of a job inventory often neglect a duty field if the duty title represents a job other than their own. This can lead to incorrect data since there may be tasks in a duty field to which the reviewer should respond.
- The definition of duty fields for a job analysis is a continuing process that is subject to revision and modification as long as tasks are being discussed and defined by the panel.

Identify Tasks

After establishing the duty fields, the panel is ready to focus on delineating the tasks for each of the duty fields. A task may be defined as a discrete unit of work performed by an incumbent worker on the job which:

- Has a recognizable beginning and ending point
- Consists of two or more steps to be performed over a short period of time
- Results in a product, decision, or service
- Can be observed and measured

Identifying tasks, like identifying duty fields, is primarily a brainstorming activity. This is the heart of the TEXCOM process. It is through these tasks that the basic skills will be identified. A properly developed task statement should have a number of desirable characteristics in order to be an effective communication device. A working knowledge of these characteristics will help the facilitator and panel create a valid job inventory. A task statement is written to:

- Include a present tense verb at the beginning
- Devise a meaningful unit of work
- Include an object upon which the verb acts
- Include the language used in the target occupations
- Be clear, concise, and stand alone
- Include no abbreviations
- Include no qualifying phrases such as "when appropriate, as required, proper, or correct use of" (These types of qualifying phrases are understood.)

The following describes what should be avoided in writing task statements:

- Avoid the use of double action verbs such as "Inspect and turn brake drums"
- Avoid statements concerning general knowledge needed or worker traits and attitudes
- Avoid the use of unnecessary, vague, and flowery modifiers such as correctly, accurately, etc.
- Avoid including more than one task to a statement
- Avoid referencing tools and equipment that merely support task performance

A well written task statement will convey the same meaning to anyone having reasonable knowledge of the target occupation. If a completed job inventory is comprehensive, any worker in the target occupation should recognize the duties and tasks as being descriptive of their job.

After the TEXCOM panel meeting, the facilitator should meet with the TAC and obtain their approval of the job inventory. A sample job inventory appears in Appendix A. Since it was obtained from expert workers and supervisors, the job inventory that results from a TEXCOM panel should be valid. The next step involves using the job inventory as a basis for determining the basic skills involved in performing the target occupation.

TASK ANALYSIS (LITERACY AUDIT)

While occupational analysis determines job content in terms of duties and tasks, task analysis ascertains the instructional content in terms of basic skills. The purpose of a task analysis is to sort out the knowledge, skills, and abilities critical to successful job performance at the task level. The task analysis creates the base of information from which workplace literacy training is designed and developed. The objective of a task analysis is to produce information that will enable the curriculum developer to create an instructional program geared to employer training needs. The process should start with the least difficult duties by taking each task and producing:

- Basic information for developing instructional objectives
- Detailed information regarding the basic skills required to perform a task
- Standards of basic skill performance that lead to the development of performance measurements and test items
- Equipment and materials pertinent to basic skills

A sample task analysis form appears in Appendix B. The form is a matrix with the tasks listed down the left-hand side and basic skills listed across the top. The tasks were taken from a job inventory. The basic skill taxonomy taken from a publication entitled Adult Literacy: Skills for the American Work Force. This document is available from the Center for Employment and Training at the Ohio State University. A more complete listing of the taxonomy appears in Appendix C. Many other basic skills taxonomies are available. Be sure whichever one you choose is compatible with existing basic skills courses at your college. This will ensure that existing courses can be readily adapted for workplace literacy efforts. The TAC should approve the basic skills taxonomy selected.

It may be desirable to have one or more teams conduct the task analysis for workplace literacy. Teams should be include a mathematics instructor, a language instructor, and a vocational-technical instructor. Coordination and collaboration between academic and vocational-technical faculty must be maintained. Only by

working together for the benefit of the student can educators provide a technically literate workforce that will be successful in global competition.

To complete the task analysis form, follow the guidelines below for each task in the inventory.

- Observe employees at work to determine the literacy skills used on-the-job.
  - Observe throughout the workday or over a period of time if tasks change periodically.
  - Note the results on the task analysis form.
  - Note the equipment and materials used to perform basic skills.
- Collect materials that are written and/or read on-the-job to determine the employer performance standards.
- Interview employees and supervisors concerning their perceptions of the literacy skills needed on-the-job. Use a task analysis form to note the basic skills that people say are most important.

Once basic skills that meet the needs of the workplace are identified, the curriculum should be developed. A process is suggested in the next section.

CURRICULUM DEVELOPMENT

This section describes a process for developing a curriculum guide for a workplace literacy program. At this point, business and industry have communicated a framework for curriculum development. It is now up to educators to convert the results of occupational and task analyses into a logical sequence of learning experiences. A curriculum guide should include as a minimum:

- Name of program (curriculum)
- Basic course outlines
  - Sequenced list of instructional objectives
  - Estimated clock hours required
- Procedures for evaluation of student progress
- References

The main advantages of a curriculum guide are:

- Gives business and industry, the supervisor of instruction, members of the TAC, and potential students an immediate overall view of the workplace literacy program
- Serves as a guide for the instructor in assuring that the objective of the program are covered

Objectives

The formulation of objectives for the basic course outline will describe the conditions under which students demonstrate a basic skill for evaluation purposes. An objective may be defined as: a statement in precise measurable terms of a particular behavior to be exhibited by a learner under specified conditions. It contains each of the characteristics specified below:

- CONDITION. The environment or situation in which the basic skill is to be performed. Tools, equipment, facilities, materials, etc. are specified.
- PERFORMANCE. The specific basic skill or behavior expected of the learner is stated. These are often described in the basic skills taxonomy.
- STANDARD. The degree of acceptable performance is specified. The standard is stated in quantitative terms, qualitative terms, or both. It is important that the materials and notes obtained during task analysis be reviewed to establish standards that are employer-based.

The following points should be observed when writing performance objectives:

- Use the basic skills taxonomy statements as the basis for writing objectives.
- Include the condition, basic skill, and employer-based standard in each objective.
- Include only one basic skill in the objective.
- Write standards which are measurable.
- Use an action verb that specifies the performance level to be demonstrated.

Sequencing

In establishing a sequence in a curriculum the developer simply puts the objectives in some order of succession. There are four common types of sequencing:

- SIMPLE TO COMPLEX. Objectives are sequenced from simple to complex. A simple objective contains few elements, while a complex objective has several subordinate parts. Chemistry and biology are often sequenced in this manner. A water molecule is simpler than a carbohydrate molecule. A single celled animal is simpler than a mammal. Basic grammar and arithmetic can be organized by simple to complex sequencing.
- PREREQUISITE LEARNING. An understanding of the objectives presented first is required to learn later objectives. Subjects consisting largely of laws such as physics, punctuation, mathematics, and geometry are frequently sequenced with this scheme.
- WHOLE TO PART. Geography often begins with the fact that the earth is a sphere because this concept is the basis of climate, seasons, and relative distance and time.

- CHRONOLOGICAL. Facts and ideas are arranged in a time sequence. This is the organization followed in history and often literature courses.

As the objectives are organized in a logical fashion, it may become evident that key concepts are missing. Perhaps a basic skill required in the workplace is rather advanced and task analysis did not reveal the "enabling" knowledge required to learn the workplace objective. In such cases, enabling objectives may be written and placed in the sequence.

After the developer is satisfied that the objectives are in a logical order, the number of clock hours required to complete each objective should be determined. Both basic skills and vocational-technical instructors should be consulted to insure that the objectives are properly sequenced and that the time reserved for instruction is adequate. The objectives can then be "clustered" into courses of the desired duration. Finally the courses are sequenced to complete the workplace literacy curriculum for the target occupation.

Evaluation of Student Progress

Effective workplace literacy programs use criterion referenced evaluation of student achievement. Criterion referenced testing measures student performance by predetermined criteria or standards. Norm referenced testing compares students to each other and should not be used in a workplace literacy program. Students should master the basic skills to the extent required by employer-based standards. Some students will inevitably perform better than others, either quantitatively or qualitatively. Nevertheless, the basis of the student achievement should be whether or not the student has mastered the objective to an employer-based standard, and not how well the student did compared to the rest of the class.

A criterion-referenced testing procedure must be established for each instructional objective. There must be at least one test item for each objective specified in the curriculum guide. Typically five to 10 items per objective should be an adequate number of test items. Very often commercial test item banks are available and can be easily adapted for this purpose. Otherwise, test items must be written by instructional staff for each objective. Test items written for use in determining student mastery of a basic skill should not be used verbatim in instruction. The items should be reserved to build mastery exams.

In writing test items and mastery exams, the following steps should be observed.

- Study each objective to determine specifically what performance is to be measured
- Identify the employer standard
- Determine the environment, equipment, materials, etc. which will be required to demonstrate mastery of the objective
- Develop a set of instructions to be observed by the student in taking the exam
- Prepare test items for each objective.
- Prepare mastery exams for each objective or cluster of objectives.

Implementation

The curriculum guide should be compiled and placed in a notebook

- Name of program
- Basic course outlines
- Mastery exams
- References

Before the reproducing the curriculum guide for dissemination, obtain approval from the TAC. Once the TAC approves the guide, distribute copies to the employers involved, the college administration, and appropriate faculty. The guide will clearly and unambiguously communicate to employers and educators alike the workplace needs and the literacy training required to meet that need.

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APPENDIX A

SAMPLE JOB INVENTORY

Northeast Texas Community College Quality Work Force Planning Unit	POULTRY PRODUCTION AND PROCESSING OCCUPATIONS								
DUTIES	TASKS								
A. PERFORMING SUPERVISORY AND MANAGEMENT FUNCTIONS	1. Hire Production Workers	2. Dismiss Production Workers	3. Prepare Payroll	4. Purchase new or used equipment	5. Lease equipment	6. Purchase supplies	7. Assign duties	8. Train employees	9. Keep records of income and expenses
	10. Deposit receipts	11. Pay bills	12. Keep feed consumption records	13. Keep egg production records	14. Keep egg quality records	15. Keep poultry mortality records	16. Review production contract	17. Keep equipment servicing and maintenance records	18. Arrange for sale of poultry and eggs
	19. Arrange financing	20. Obtain insurance on house and equipment	21. Arrange for construction of poultry house	22. Arrange for purchase of land	23. Arrange for purchase of poultry house	24. Purchase litter	25. Contact flock super. or vet when birds appear sick	26. Purchase fuel	
B. PREPARING THE HOUSE FOR BIRDS	1. Order Feed	2. Clean walls, screens, ceilings, and equipment	3. Clean feed bins	4. Remove used litter with loader	5. Remove liquid manure with pump	6. Dispose of used litter	7. Prepare litter for reuse	8. Disinfect building and equipment	9. Add clean litter
	10. Prepare brooders for reuse	11. Prepare automatic feeders	12. Prepare automatic waterers	13. Set up temporary feeders and waterers for young birds	14. Locate curtains for partial house brooding	15. Install brooder guards for young birds	16. Service light fixtures	17. Prepare nests for reuse	
C. CARING FOR BIRDS	1. Adjust lighting	2. Adjust building heating units	3. Adjust ventilation system	4. Adjust supplemental (evaporative) cooling system	5. Fill temporary feeders and waterers	6. Store temporary feeders and waterers	7. Dispose of dead birds	8. Keep birds free of ectoparasites (mites & lice)	9. Keep poultry houses and premises free of house flies
	10. Control rodents	11. Administer medications	12. Clean medicator	13. Clean feeders and waterers	14. Adjust feeders and waterers	15. Record daily water consumption	16. Record daily feed consumption	17. Provide range shelters for turkeys	18. Control range predators
	19. Set up waterers for range turkeys	20. Fill waterers for range turkeys	21. Set up feeders for range turkeys	22. Fill feeders for range turkeys	23. Adjust temperature and humidity in egg storage room	24. Cull layers	25. Move turkeys from one facility to another		
D. PREPARING PRODUCTS FOR MARKET	1. Gather and pack eggs	2. Clean eggs (hand method)	3. Grade eggs	4. Refrigerate eggs	5. Remove feed and water from birds prior to market shipment				

Northeast Texas Community College Quality Work Force Planning Unit	POULTRY PRODUCTION AND PROCESSING OCCUPATIONS								
DUTIES	TASKS								
E. MAINTAINING BUILDINGS, GROUNDS, AND MACHINERY	1. Mow grass	2. Maintain all-weather road	3. Clean drainage ditches	4. Apply herbicides	5. Store and inventory supplies	6. Paint buildings	7. Repair roof (small leaks)	8. Tighten doors	9. Clean air inlets
	10. Inspect buildings for unwanted air filtration	11. Test alarm system	12. Test standby power system	13. Service all fuel powered machinery	14. Maintain in-house equipment				
F. RECEIVING	1. Handle birds	2. Stun and kill birds	3. Scald and pick birds						
G. EVISCERATING	1. Prepare carcass	2. Present carcass for USDA inspection	3. Trim carcass	4. Present carcass for final USDA inspection					
H. PACKING	1. Chill carcass or parts	2. Grade carcass or parts	3. Size carcass or parts	4. Tub carcass or parts					
I. FAST FOOD CUT-UP	1. Co-ordinate products	2. Separate birds	3. Observe quality	4. Package products					
J. DEBONING	1. Halve birds	2. Package legs	3. Debone front half	4. Tub and weigh parts					
K. INSTANT QUICK FREEZING	1. Pack in freezer	2. Perform glaze test	3. Package parts						
L. STORAGE	1. Separate product	2. Rotate products to coolers	3. Conduct inventory						

Northeast Texas Community College Quality Work Force Planning Unit	POULTRY PRODUCTION AND PROCESSING OCCUPATIONS								
DUTIES	TASKS								
M. SHIPPING	1. Coordinate route sales	2. Sanitize trucks	3. Maintain vehicle temperature control	4. Generate billing					
N. PLANT SANITATION	1. Remove waste products	2. Prepare chemicals	3. Sanitize the facilities and equipment	4. Perform final inspection					

Northeast Texas Community College Quality Work Force Planning Unit	POULTRY PRODUCTION AND PROCESSING OCCUPATIONS								
DUTIES	TASKS								

APPENDIX B

SAMPLE TASK ANALYSIS FORM

Northeast Texas Community College
Quality Work Force Planning Unit

POULTRY PRODUCTION AND PROCESSING OCCUPATIONS

VOCATIONAL-TECHNICAL DUTIES AND TASKS	WORKPLACE LITERACY (ACADEMIC) SKILLS	MATHEMATICS								READING									WRITING										SPEAKING				LISTEN-ING	
		Read, Write, and Count	Whole Numbers	Fractions	Decimals	English and Metric Measurement	Numeric Relationship	Simple Linear Equations	Letters of the Alphabet and Numbers	Visual and Auditory Discrimination	Basic Sight Words	Reading for Facts and Information	Reading for Instruction	Reading for Ideas	Reading to Infer Meaning	Reading to Generalize	Reading to detect Fallacy or Persuasive Intent	Letters of the Alphabet	Copying Texts and Drafts	Capitalization	Spelling	Punctuation	Handwriting	Grammar	Phrases, Sentences, Paragraphs	Letters, Reports, Messages	Forms and Applications	Dates and Time	Selecting Words	Speaking Face to Face	Speaking over the Telephone	Giving Information or Directions	Literal Comprehension	Interpretive Comprehension
A. PERFORMING SUPERVISORY AND MANAGEMENT FUNCTIONS																																	
1. Hire Production Workers																																	
2. Dismiss Production Workers																																	
3. Prepare Payroll																																	
4. Purchase new or used equipment																																	
5. Lease equipment																																	
6. Purchase supplies																																	
7. Assign duties																																	
8. Train employees																																	
9. Keep records of income and expenses																																	
10. Deposit receipts																																	
11. Pay bills																																	
12. Keep feed consumption records																																	
13. Keep egg production records																																	
14. Keep egg quality records																																	
15. Keep poultry mortality records																																	
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21. Arrange for construction of poultry house																																	
22. Arrange for purchase of land																																	
23. Arrange for purchase of poultry house																																	
24. Purchase litter																																	
25. Contact flock supervisor or vet when birds appear to be sick																																	
26. Purchase fuel																																	

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POULTRY PRODUCTION AND PROCESSING OCCUPATIONS

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B. PREPARING THE HOUSE FOR BIRDS																																
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2. Clean walls, screens, ceilings, and equipment																																
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C. CARING FOR BIRDS																																	
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D. PREPARING PRODUCTS FOR MARKET																																		
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2. Separate birds																																	
3. Observe quality																																	
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L. STORAGE																																		
1. Separate product																																		
2. Rotate products to coolers																																		
3. Conduct inventory																																		
M. SHIPPING																																		
1. Coordinate route sales																																		
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POULTRY PRODUCTION AND PROCESSING OCCUPATIONS

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APPENDIX C

SAMPLE BASIC SKILL TAXONOMY

SAMPLE BASIC SKILL TAXONOMY

Mathematics

A. Read, Write, and Count

The adult will be able to perform the following whole number operations:

1. Given a series of numbers in numeral form (e.g., 10, 20, 30), copy the series in handwritten form.
2. Identify place value of digits in a given whole number with up to seven digits.
3. Read a given whole number of less than 10 million and write it out in words.
4. Write a whole number of less than 10 million when given the number spelled out in words.
5. Count a set of up to 100 objects and state or write the number of objects counted.
6. Arrange a set of whole numbers in ascending or descending order.

B. Whole Numbers

Given appropriate whole number problem sets, the adult will be able to solve problems involving the following:

7. Addition of whole numbers without and with carrying
8. Subtraction of whole numbers without and with borrowing
9. Multiplication of whole numbers without and with carrying
10. Division of whole numbers with quotients expressed, if necessary, with whole number remainders
11. Division of whole numbers with quotients expressed, if necessary, with fractional or decimal remainders
12. Rounding off to the nearest whole number

C. Fractions

Given appropriate fraction and/or mixed number problem sets, the adult will be able to solve problems involving the following:

13. Addition of common and mixed fractions with like and unlike denominators
14. Subtraction of common and mixed fractions with like and unlike denominators
15. Multiplication of common and mixed fractions
16. Division of common mixed fractions

D. Decimals

Given appropriate decimal number problem sets, the adult will be able to solve problems involving the following:

17. Addition of simple and mixed decimals
18. Subtraction of simple and mixed decimals
19. Multiplication of simple and mixed decimals
20. Division of simple and mixed decimals

E. United States Customary (English) and Metric Measurement

Given appropriate United States customary (English) or metric unit measurement problem sets, the adult will solve problems involving the following:

21. Linear measurement with accuracy to the nearest unit necessary
22. Area measurement with accuracy to the nearest unit necessary
23. Volume and capacity measurement with accuracy to the nearest cubic, fluid, or dry unit necessary
24. Mass or weight measurement with accuracy to the nearest unit necessary

F. Numeric Relationship

Given appropriate problem sets, the adult will solve problems involving the conversion, in either direction, of the following:

25. Common fractions and decimal fractions
26. Common fractions and percents
27. Decimal fractions and percents
28. United States customary measurement units and equivalent metric units

G. Simple Linear Equations and Other Problem Solving Skills

Given appropriate problem sets, the adult will solve problems involving the following:

29. Estimation and approximation
30. One and two-step linear equations
31. Identification of the information and operations necessary for, and the solution of, applied problems such as time, rate. and distance
32. Use of a hand-held calculator

Reading

A. Letters of the Alphabet and Numbers

1. Given letters of the alphabet in manuscript form and in random order, the adult will pronounce each letter correctly.

2. Given the letters of the alphabet in manuscript form and in random order, the adult will read each letter correctly in the proper alphabetical order.
3. Given whole numbers, fractions, decimals, percents, and simple Roman numerals, the adult will pronounce each correctly.

B. Visual and Auditory Discrimination

Sounds

4. Given a list of word pairs orally, the adult will indicate which word pair rhyme and which don't
5. Given a list of word pairs orally, the adult will indicate which word pairs begin with the same sound and which pairs don't.
6. Given a list of word pairs orally, the adult will indicate which word pairs have the same vowel sound and which pairs don't.
7. Given a list of word pairs orally, the adult will indicate which word pairs have the same ending sounds and which pairs don't.

Consonants

8. Beginning consonants: Given a familiar word and a list of consonants the adult will make new words by substituting each of the consonants for the initial one in the original word. The adult will pronounce each newly formed word correctly.
9. Beginning consonant blends: Given orally a list of words that begin with consonant blends, the adult will correctly identify the letters making the initial blend sound. Initial blends will include:

    dr, fr, bl, cl, fl
    sc, sm, sp, cr, tr, br
    st, gr, pl, sn, sl, sw
    gl, sk, pr, str, spr, tw, squ
    scr, shr, thr, spl, kn, ch, gn, pn

10. Final consonants: Given orally a word ending in a consonant and a written list of letters, the adult will identify from the list the final consonant.
11. Final consonant blends: Given orally a lift of words which ending with consonant blends, the adult will correctly identify the letters making the final blend sound. Final consonant blends will include:

    ft, sk, st, sp, ld, rd, rk, rt,
    nk, nd, ng, nt, lm, mp

Vowels

12. Short vowel sounds: Given one-syllable words having short vowels in initial or medial position, the adult will blend the sound patterns together to produce the correct sound.
13. Long vowel sounds: Given a list on one-syllable words with a short vowel sound by adding a final E and will pronounce the new word correctly.
14. Vowel diphthongs: Given a list of words having the vowel digraphs au, aw, ew, eu, oo, ou, ie, and ei, the adult will pronounce each word correctly.
15. Vowels with "r": Given a list of words containing a single vowel followed by the letter r, the adult will pronounce each word correctly.
16. Given a one-syllable word in which there is a single vowel at the beginning or in the middle, the adult will pronounce the vowel with a short sound.
17. Given a one-syllable word that has a single vowel at the end, the adult will pronounce the vowel with a long sound.
18. Given a one-syllable word with this pattern: CVCE, the adult will pronounce the vowel with a long sound.
19. Given the letter combinations: ai, oa, and ea in one-syllable words, the adult will pronounce the combination according to the more common pattern of making the first vowel long and the second vowel silent.
20. Given one-syllable words in which the letter combinations er, ir, and ur appear, the adult will pronounce the combinations as "ur".
21. Given a one-syllable word in which a is followed by r, the adult will pronounce the sound neither long, nor short, but as in the word "car."
22. Given a one-syllable word in which a vowel is followed by two consonants and a final e, the adult will pronounce the vowel with a short sound.
23. Given the letters ti, ci, or si in a word, the adult will pronounce the combination as "sh."
24. Given a word in which c or g is followed by e, i, or y, the adult will pronounce those letters with a soft sound.
25. Given a list of words, the adult will identify those that have a schwa sound in an unstressed syllable.
26. Given a list of words containing the four sounds of "y<" the adult will pronounce the words correctly.

27. Given a list of words containing the different sounds of "gh" and "ght" the adult will pronounce the words correctly.

Syllables

28. Given a multisyllable word in which two consonants follow the first vowel, the adult will divide that word between the two consonants. (Students will recognize that consonant blends and digraphs are treated as a single consonant.)
29. Given a multisyllable word in which a single consonant follows the first vowel sound, the adult will divide that word in two possible places V/CV VC/V and give three possible pronunciations (vowel as long, short, or schwa).
30. Given a word in which the letters -le follow a consonant, the adult will divide the word making the cle letters a single syllable.
31. Given a word in which there are prefixes or suffixes, the adult will syllabicate that word showing that prefixes and suffixes form their own syllables.
32. Prefixes, suffixes, roots: The adult can state the meanings of common Latin and Anglo-Saxon prefixes, suffixes, and roots.
33. Accents: The adult can list the 4 basic clues for finding the accented syllable:
    Clue I: The accent falls on a root, generally, when one or more prefixes or suffixes are added.
    Clue II: The accent generally falls on the syllable that precedes these suffixes: sion, tion, ic.
    Clue III: For words of three or more syllables, one syllable generally stands between the accented syllable and the silent "e" syllable.
    Clue IV: The accent generally falls on the syllable that precedes the vowel "i" when this letter occurs before a final syllable.

C. Basic Sight Words

34. Given the Barnes Revised Dolch list of 193 words, the adult will read all words correctly.

D. Reading for Facts and Information

35. Given appropriate reading material, either prose or abbreviated sources, the adult will be able to obtain needed factual information.

E. Reading for Instruction

36. Given appropriate reading material, either prose or abbreviated sources, the adult will identify and follow procedures and directions to achieve some specific end.

F. Reading for Ideas

Given appropriate reading material, either prose or abbreviated sources, the adult will be able to read and subsequently demonstrate adequate understanding of the following:

37. Cause and effect relationships
38. Sequential and temporal relationships
39. General technical concepts
40. Physical and social principles

G. Reading to Infer Meaning

Given appropriate reading material, either prose or abbreviated sources, the adult will do the following:

41. Use context clues to determine the meaning of unfamiliar words (e.g., experience clues, synonym clues, association clues, previous contact clues)
42. Examine the structure of unfamiliar words to determine if there are recognizable parts that give clues to their meaning (e.g., syllables, affixes, compound words)
43. Distinguish between a word's denotation and connotation
44. Infer meaning from the order and sequence of words as well as the words themselves
45. Synthesize and infer meaning from simples verbal, spatial and/or mathematical data

H. Reading to Generalize

Given appropriate reading material, either prose or abbreviated sources, the adult will be able to do the following:

46. Draw conclusions from the facts given
47. Predict future events based on the facts given
48. Extend applications from the facts given

I. Reading to Detect Fallacy or Persuasive Intent

Given appropriate reading material, the adult will identify the following:

49. Fallacious arguments
50. Inconsistent facts
51. Illogical conclusions
52. Author bias in tone, use of emotionally loaded words and selective choice of information

Writing

A. Letters of the Alphabet

1. Given the letters of the alphabet in random order, the adult will write or print the letters in alphabetical order.

B. Copying Text and Drafts

2. Given written numbers, letters of the alphabet, words, sentences, and/or paragraphs, the adult will copy them correctly.
3. Given sentences or paragraphs organized in a rigid form (e.g., a business letter, report, etc.), the adult will copy them exactly.

C. Capitalization

4. Given a writing assignment that calls for capitalizing appropriate words, the adult will identify the words in sentences that should be capitalized.

D. Spelling

5. Given a writing assignment, the adult will spell common words correctly.

E. Punctuation

Given a writing assignment that calls for punctuation, the adult will correctly use the following:

6. Commas, colons, hyphens, semicolons, dashes, apostrophes, quotation marks
7. End marks
8. The singular, plural, singular possessive, or plural possessive forms of nouns

F. Handwriting

9. Given a writing assignment, the adult's penmanship will be legible enough to be read either in cursive or printed form.

G. Grammar

Given an appropriate writing assignment, the adult will use the following:

10. Regular and irregular verbs accurately in context with reference to tense and numbers
11. Positive, comparative, and superlative adjectives and adverbs in context correctly
12. Pronouns to take the place of nouns

H. Phrases, Sentences, Paragraphs

Given an appropriate writing assignment, the adult will do the following:

13. Place modifiers correctly

14. Complete sentences
15. Use parallel construction to classify relationships emphasizing similarities and differences
16. Avoid run-on sentences and comma splices
17. Clarify meaning by subordinating
18. Use an effective sequence of sentences to form paragraphs

I. Letters, Reports, and Messages

19. Given a appropriate writing assignment, the adult will construct letters, reports, and messages using appropriate format and length.

J. Forms and Applications

20. Given a sample form or application such as for employment, Social Security, credit, etc., the adult will complete the form or application correctly and legibly.

K. Dates and Time

21. Given a date and time of day, the adult will write them accurately using correct punctuation and capitalization.

Speaking

A. Selecting Words

Given an appropriate speaking situation, the adult will choose appropriate words that will achieve the following:

1. Avoid using inappropriate emotional words
2. Choose between technical and lay terms depending on the audience
3. Use slang only as appropriate
4. Communicate thoughts, actions, feelings, ideas, observations and inquiries effectively

B. Speaking Face to Face

Given a speaking situation, the adults will initiate, maintain, or conclude a conversation by doing as follows:

5. Pronounce words correctly and clearly given the constraints of the local dialect
6. Use appropriate cadence and inflection
7. Use appropriate body movements and tone of voice

C. Speaking over the Telephone

Given a speaking situation where a telephone is used, the adult will demonstrate the following:

8. Use associated services such as operator assistance, directory assistance, and the local directory
9. Use the correct technique for placing calls
10. Use proper protocol in identifying one self and one's place of work and addressing the caller

D. Giving Information or Directions

Given an appropriate speaking situation, the adult will do as follows:

11. Describe orally, in a few short sentences, information about a given person, place, thing, or job performed
12. Describe an experience or some event that was witnessed (or read about)
13. Organize and express directions in a logical sequence
14. Explain to someone else how to perform a task, given experience at performing the task, or having learned from another person or a manual how to perform the task

Listening

A. Literal Comprehension

Given appropriate listening situations, the adult will listen for the following:

1. Obtain specific information
2. Identify procedures and directions to follow and/or achieve some specific end
3. Understand general and technical concepts
4. Understand sequential and temporal relationships, including cause and effect relationships
5. Identify the correct meanings of words that sound similar but are different in meaning
6. State the meanings of selected words heard in context
7. Identify the main idea from a given speech that has just one main idea
8. List facts from an oral statement to support the main idea

B. Interpretive Comprehension

Given appropriate listening situations, the adult will listen for the following:

9. Use context clues to infer the meaning of unknown words
10. Draw conclusions from the facts given
11. Predict future events based on the facts given
12. Extend applications from the facts given
13. Identify what additional information is needed after hearing a conversation

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